POSTGRADUATE PROFILE

DEPARTMENT OFCHEMISTRY

2018-2024

I. INTRODUCTION

M.Sc. Chemistry (Specialization- Organic Chemistry) was introduced in the institution in the year 2002 and is affiliated to Osmania University. The students are admitted into this course through a state level Common Post Graduate Entrance Test (CPGET) conducted by Osmania University. M.Sc. Chemistry is a two year programme designed to give students an insight into the world of chemical science.

VISION

Molding young minds into independent and innovative thinkers in Chemical Sciences.

MISSION

- To promote, inspire and nurture the fundamentals of chemistry.
- To promote intellectual, technological and economic development of nation through discovery and development of knowledge in the field of chemistry.
- To inculcate ethical and moral values in students of chemistry and encourage them to become responsible citizens, capable of handling their lives effectively.

POST GRADUATE PROGRAMME IN CHEMISTRY

Master's degree programs in chemistry should include:

- To extend students comprehension of key chemical concepts and so provide them with an in- depth understanding of specialized areas of chemistry.
- To provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes.
- To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.
- To instill a critical awareness of advances at the forefront of the chemical science discipline.
- To prepare students effectively for professional employment or doctoral studies in the chemical sciences.

TEACHING STAFF

S.No	Name	Designation	Qualification	Service
1.	Dr.B.Vanaja	Asso. Prof,HOD	M.Sc,Ph.D	29
2.	Ms. Ramitha Nair R	Asst.Prof	M.Sc. B.Ed. SET	12
3.	Dr. K. Vijaya Lakshmi	Asst.Prof	M.Sc.Ph.D.	9
4.	Ms. R. Shivajyothi	Asst.Prof	M.Sc.	6
5.	Ms. B. Keerthana	Asst.Prof	M.Sc.	1

NON- TEACHING STAFF

S.No	Name	Designation	Qualification	Service
1.	Ms. P. Sujatha	PG Lab Assistant	B.Sc	15
2.	Mr. Komal Singh	PG Attender	B.A.	23
3.	Ms. K. Anuradha	PG Ayah	5^{th} Class	28

FACULTY PROFILE

Dr. B. Vanaja Reddy
Qualification: Ph.D in Chemistry (HOD)

Experience: 28 Years

PH.NO: 9441118982

Email Id: vanaja.bachireddy@gmail.com

ACADEMIC PROFILE:

Ph.D in Chemistry awarded by Osmania University, Hyderabad in 18th March 2017.

Topic of research "Design synthesis, Characterization & Anticancer activity of Novel Heterocyclic compounds"

Qualified Ph.D- Eligibility test conducted by Directorate of Admissions, Osmania University.

M. Sc in Organic Chemistry, March 1993, Osmania University, Hyderabad.

B.Sc in BZC, March 1991, Osmania University, Hyderabad.

PUBLICATIONS

1. B. Vanaja published a paper entitled "Microwave Assisted Synthesis of Substituted 4-Chloro-8-methyl-2-(1, 3-diphenyl-1H-pyrazol-4-yl)-1,5-dioxa-2H-phenanthren-6-ones and Their Antimicrobial Activity", in the ***Journal of the Serbian Chemical Society,*****2017***, 82(2)*, 117-125.
2. B. Vanaja published a paper entitled "Synthesis and Anticancer Activity Evaluation of (*E*)-3-{[5-(Aryl)-1, 3, 4-oxadiazol-2-yl] methyl}-5-(3,4,5-trimethoxybenzylidene) thiazolidine-2,4-diones", in the ***Russian Journal of General Chemistry***, **2016**, *86(3)*, 681-685.

EXTRA ACTIVITIES

1. Member of Indian Science Congress Association – Membership No. SLM3050 for the year 2018.

2. Review committee member for Intermediate Telugu Academy 2002.

3. Poster Presentation in the International Conference on "Material Science for Societal Advancement" Osmania University on 20 – 22nd January 2020.

4. Judged the PowerPoint presentation organized on one day seminar Emerging Trends and Technological Advancements in Bio-Medical Research on 7th August 2023 by Andhra Mahila Sabha College.

ACTIVITIES: 2018-2023

FDP's conducted: Six Day FDP on " Innovative Practice in Chemical Science" organized by Department of Chemistry, A. V. College of Arts, Science and Commerce in collaboration with Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya from 23- 28 September 2021.

Webinar Organized:

- A Webinar on "Role of Chemistry in Mitigating COVID19." On 13th June 2020, in the Department of Chemistry, Sarojini Naidu Vanita MahaVidyalaya, Exhibition Grounds, Hyderabad.
- An International Webinar on "COVID-19 a Pandemic of Coronavirus: Underlying Chemistry from Cause to Cure" On 15th June 2020, in the Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya, Exhibition Grounds, Hyderabad.

Orientation Programme: Participated in "Online NEP Orientation and Sensitization Programme" organized by UGC- Malaviya Mission Teacher Training Centre, Osmania University from 12th to 21st October 2023.

Add- on Course: A 30hrs add-on course titled "Green Chemistry" was conducted for UG Chemistry students from 21thFebruary 28th April 2023.

Guest Lecture:

- Delivered a guest lecture on "Significance of Organic Compounds containing Nitrogen" at St. Joseph's degree and PG College for women to B.Sc. II year students on 8th November 2023.
- Delivered a guest lecture on "the significance of hydroxy compounds" on 19th April 2023 for B.Sc. students in AV College of Arts Science and Commerce.
- Delivered a lecture on **Careers in Chemistry** for UG and PG students in Sarojini Naidu Vanita Mahavidyalaya on 14th August 2020.

FDP's attended: 3

Seminar and Conferences attended: 4

FACULTY PROFILE

RAMITHA NAIR R
ramitha.nair7@gmail.com
EXPERIENCE: 13 years

ACADEMIC QUALIFICATION:

- M.Sc. Organic Chemistry from Sarojini Naidu Vanita Maha Vidyalaya
- Bachelor of Education from Srinidhi College of Education
- B.Sc. (Biotech, Zoo, Chem) From St. Francis Degree College for Women
- Intermediate from Narayana Junior college
- S.S.C. from N.S.K.K High School

CREDENTIALS:

- Gold medal in B.Sc. for scoring highest marks in Chemistry.
- Gold medal in M.Sc. Final year
- Qualified TS-SET in October 2017

ACTIVITIES 2018-2023

FDP's conducted: Six Day FDP on " Innovative Practice in Chemical Science" organized by Department of Chemistry, A. V. College of Arts, Science and Commerce in collaboration with Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya from 23- 28 September 2021

Outreach Programme conducted: Visited two Government Schools in Amberpet and Nallakunta, Hyderabad as a part of "Gyana Jyothi Outreach Programme" Conducted by Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya on 12th October 2022.

Orientation Programme: Participated in "Online NEP Orientation and Sensitization Programme" organized by UGC- Malaviya Mission Teacher Training Centre, Osmania University from 12th to 21st October 2023.

Add- on Course: A 30 hrs add-on course titled "Academia –Industry Interface" was conducted for M.Sc. Chemistry students from 12th December 2022 to 04th February 2023.

FDP's attended: 5
Workshop's attended: 3
Seminars and Conferences attended: 4
Webinars attended: 8

FACULTY PROFILE

Dr. K.VIJAYA LAKSHMI
E-mail: kvlchem@gmail.com
EXPERIENCE: 9 years
ACADEMIC QUALIFICATION:

Ph.D in Chemistry awarded by Osmania University,Hyderabad in 21st February 2014.

Topic of research "*Preparation of Lipid-based Nutraceuticals and Oleochemicals"*
Advisor: Dr. R. B. N. Prasad Scientist, Centre for Lipid Research, IICT

M.Sc in Organic Chemistry with Ist Division, Osmania University, Hyderabad.

B.Sc in BZC, with Ist Division Osmania University, Hyderabad.

Intermediate with IInd Division Board of Intermediate Education, AP.

S.SC with Ist Division Board of Secondary Education, AP

RESEARCH PAPERS

1. Highly Efficient SO3H – Carbon Catalyst Solvent –Free Synthetic Protocol for Wax esters via Esterfication of Long Chain Fatty Acids and Alcohols, B.L.A. Prabhavathi Devi, **K. Vijaya Lakshmi**, T Vijai Kumar Reddy, **Asian Journal of Green Chemistry 7, 239-249, 2023.**

2. Novel Heterogeneous SO3Na-Carbon Transesterfication Catalyst for the production of Biodiesel, B.L.A. Prabhavathi Devi, **K. Vijaya Lakshmi**, K. N. Gangadhar R.B.N. Prasad, P.S. Sai Prasad, B. Jagannadh Partha, P Kundu, Gayatri Kumari and Chandrabhas Narayana, **Chemistry Select Communications**, **2, 1925 – 1931, 2017.**
3. Green Recyclable SO3H-carbon Catalyst Derived from Glycerol for the Production of Biodiesel from FFA-containing Karanja (Pongamia Glabra) Oil in a single step, B.L.A. Prabhavathi Devi,T. Vijai Kumar Reddy, **K. Vijaya Lakshmi**, R.B.N. Prasad, **Bioresource Technology 153, 370–373, 2014**
4. A Simple and Facile Method for the Synthesis of 1-octacosanol, **K. Vijaya Lakshmi**, K. Shiva Shanker, B.V.S.K. Rao, R.B.N. Prasad, B.L.A. Prabhavathi Devi, **European Journal of Lipid Science and Technology**, **115, 921–927, 2013.**

5. A Novel Bioglycerol-based Recyclable Carbon Catalyst for an Efficient One-pot Synthesis of Highly Substituted Imidazoles, K. Ramesh, S. Narayana Murthy, Y.V.D. Nageswar, **K.VijayaLakshmi,** B.L.A.

Prabhavathi Devi, R.B.N. Prasad, **Tetrahedron Letters 53, 1126–1129, 2012.**

6. A Mild and Efficient Synthesis of Bis(indolyl)methane Derivatives Catalyzed by Monoammonium Salt of 12-Tungstophosphoric Acid, B.Y. Giri, **K. Vijaya Lakshmi**, B.L.A. Prabhavathi Devi, P.S. Sai Prasad, R.B.N. Prasad, **Indian Journal of Chemistry 51 B,1731-1737, 2012 .**
7. An Efficient Synthesis of Quinoxalines Catalyzed by Monoammonium Salt of 12-Tungsto-phosphoric Acid, **K. Vijaya Lakshmi**, B.L.A. Prabhavathi Devi, B.Y. Giri, P.S. Sai Prasad, R.B.N. Prasad, **European Journal of Chemistry 2, 495-498, 2011.**
8. A Simple and An Efficient Method for the Synthesis of Benzimidazole Derivatives using Monoammonium Salt of 12-Tungstophosphoric Acid, B.Y. Giri, B.L.A. Prabhavathi Devi, K.N. Gangadhar, **K.Vijaya Lakshmi**, R.B.N. Prasad, **Synth. Commun, 37, 2331-2336, 2007.**
9. An Efficient Method for the Synthesis of 1, 5-benzodiazepine Derivatives Catalyzed by Monoammonium Salt of 12-Ttungstophosphoric Acid, B.Y. Giri, B.L.A. Prabhavathi Devi, **K. Vijaya Lakshmi**, R.B.N. Prasad, **Synth. Commun, 36, 3797-3801, 2006 .**

PATENT: Process for the preparation of Hexadecyl cis -9-Tetradeceloate and Hexadecyl cis-10 –Tetradecenoate in **US Patent No. 8,816,109 B2, August 26 2014.**

ACTIVITIES 2018-2023

FDP's conducted: Six Day FDP on " Innovative Practice in Chemical Science" organized by Department of Chemistry, A. V. College of Arts, Science and Commerce in collaboration with Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya from 23- 28 September 2021

Outreach Programme conducted: Visited two Government Schools in Amberpet and Nallakunta, Hyderabad as a part of "Gyana Jyothi Outreach Programme" Conducted by Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya on 12th October 2022.

Orientation Programme: Participated in "Online NEP Orientation and Sensitization Programme" organized by UGC- Malaviya Mission Teacher Training Centre, Osmania University from 12th to 21st October 2023.

Add- on Course: A 30 hrs add-on course titled "Academia –Industry Interface" was conducted for M.Sc. Chemistry students from 12th December 2022 to 04th February 2023.

FDP's attended: 5
Workshop's attended: 3
Seminars and Conferences attended: 4
Webinars attended: 8

FACULTY PROFILE

R. SHIVAJYOTHI
rudrarapu.shivajyothi@gmail.com
EXPERIENCE: 7 years
ACADEMIC QUALIFICATION:

- **M.Sc Inorganic Chemistry** University college for Women, Osmania University, Hyderabad with 7.21 CGPA.

- **Degree (B.Sc)** in University college for Women, Osmania University, Hyderabad with an aggregate of 78%
- **Intermediate** Sri chaitanya Junior college, State board of A.P, Hyderabad with 86%

- **SSC** Shakuntala high school, HYD Board of secondary education, A.P, Hyderabad with 90%

ACTIVITIES 2018-2023

FDP's conducted: Six Day FDP on " Innovative Practice in Chemical Science" organized by Department of Chemistry, A. V. College of Arts, Science and Commerce in collaboration with Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya from 23- 28 September 2021

Outreach Programme conducted: Visited two Government Schools in Amberpet and Nallakunta, Hyderabad as a part of "Gyana Jyothi Outreach Programme" Conducted by Department of Chemistry, Sarojini Naidu Vanita Maha Vidyalaya on 12th October 2022.

Orientation Programme: Participated in "Online NEP Orientation and Sensitization Programme" organized by UGC- Malaviya Mission Teacher Training Centre, Osmania University from 12th to 21st October 2023.

Add- on Course: A 30 hrs add-on course titled "Academia –Industry Interface" was conducted for M.Sc. Chemistry students from 12th December 2022 to 04th February 2023.

FDP's attended: 6
Workshop's attended: 3
Seminars and Conferences attended: 6
Webinars attended: 3

FACULTY PROFILE

BOMMA KEERTHANA
D/O Bomma Kumar
Contact No:- 9502677376
Email: **bommakeerthana2526@gmail.com**

ACADEMIC QUALIFICATION: -

- B.Ed (Bachelor of Education) from Modern College of Education, Osmania University, Hyderabad with an aggregate of 80% in 2021.
- M.Sc. Physical Chemistry from University College of Science, Osmania University (Main Campus)Tarnaka, Hyderabad with an aggregate of 65% in 2018
- B.Sc. (Biotechnology, Zoology, Chemistry) from Alphores Degree & PG College for Women with an Aggregate of 85% in 2016
- Intermediate from Alphores Junior College with an aggregate of 73.5% in 2013.
- S.S.C. from Model High School with an aggregate of 85% in 2011.

WORKING EXPERIENCE: -

Working as a PG lecturer at Sarojini Naidu Vanita Maha Vidyalaya from April 2023 to till date.

Worked as a UG & PG lecturer at Avanthi Degree & PG College from July 2018 – 2023.

PROJECT EXPERIENCE:-

- Completed summer project "TOWARDS **APPLICATION OF BAYLIS-HILLMAN BROMIDES FOR SYNTHESIS OF ENE - EPOXIDES" under the supervision of Prof.D.Basavaiah** from 13th June 2017 to 11th Aug 2017 under UGC - Networking Resource Centre in SCHOOL OF CHEMISTRY at University of Hyderabad (HCU).

CREDENTIALS: - UNIVERSITY RANK HOLDER

- Selected for the **POST GRADUATE Scholarship** of **University Rank Holder** Under UGC, New Delhi for 2 years during M.Sc.

No. of Seminars attended: - 02
No. of Workshops attended: - 02
No. of FDPs attended: - 02
No. of Orientations attended: - 01
No. of Webinars attended: - 02

POSTGRADUATE PROGRAMME

M.Sc. Chemistry

Specialization- Organic Chemistry

Duration- 2 years (4 Semesters)

Batch	Sanctioned Intake + Management	Strength
2017-19	30 + 6	35
2018-20	30 + 6	35
2019-21	30 + 6	32
2020-22	30 + 6	30
2021-23	30 + 6	30
2022-24	30 + 6	22
2023-25	30 + 6	17

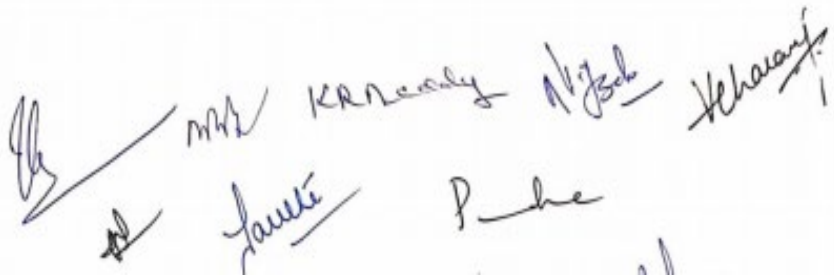
DEPARTMENT OF CHEMISTRY
OSMANIA UNIVERSITY
(Effective from academic year 2023-2024 for Campus, Constituent and Affiliated colleges)

Semester I

	Hrs. /week	internal assessment	Semester exam	Total	Credits
CH101T (*)	3	30 marks	70 marks	100 marks	3
CH102T (*)	3	30 marks	70 marks	100 marks	3
CH103T (*)	3	30 marks	70 marks	100 marks	3
CH104T (*)	3	30 marks	70 marks	100 marks	3
CH151P (IC LAB*)	4			50 marks	2
CH152P (OC LAB*)	4			50 marks	2
CH153P (PC LAB*)	4			50 marks	2
CH154P (AC LAB*)	4			50 marks	2
Total				**600 marks**	**20**

Semester II

	Hrs. /week	internal assessment	Semester exam	Total	Credits
CH201T (*)	3	30 marks	70 marks	100 marks	3
CH202T (*)	3	30 marks	70 marks	100 marks	3
CH203T (*)	3	30 marks	70 marks	100 marks	3
CH204T (*)	3	30 marks	70 marks	100 marks	3
CH251P (IC LAB*)	4			50 marks	2
CH252P (OC LAB*)	4			50 marks	2
CH253P (PC LAB*)	4			50 marks	2
CH254P (ACS LAB*)	4			50 marks	2
Total				**600 marks**	**20**



M.Sc. CHEMISTRY (ORGANIC CHEMISTRY SPECIALISATION)

Syllabus for III and IV Semesters

(for the batches admitted in academic year 2016 & later under CBCS pattern)

[Under Restructured CBCS Scheme]

Grand total marks and credits (all 4 semesters) 2400 marks – 96 credits

(Approved in the P.G.BOS meeting held on 01-07-2017)

SEMESTER-III

Paper	Instruction Hrs/Week	Internal assessment marks*	Semester marks	Total marks	Total credits
CH(OC)301T	4	20	80	100	4
CH(OC)302T	4	20	80	100	4
CH(OC)303T	4	20	80	100	4
CH(OC)304T	4	20	80	100	4
CH(OC)351P	9	-	100	100	4
CH(OC)352P	9	-	100	100	4
Total				**600**	**24**

SEMESTER - IV

Paper	Instruction Hrs/Week	Internal assessment marks*	Semester marks	Total marks	Total credits
CH(OC)401T	4	20	80	100	4
CH(OC)402T	4	20	80	100	4
CH(OC)403T	4	20	80	100	4
CH(OC)404T	4	20	80	100	4
CH(OC)451P	9	-	100	100	4
CH(OC)452P	9	-	100	100	4
Total				**600**	**24**

* *15 marks for the written test and 5 marks for the assignment*

Grand total all 4 semesters: 2400 marks and 96 credits

M.Sc. CHEMISTRY
PROGRAMME OUTCOMES

PO1: Students acquire knowledge in the subject and develop critical thinking, reasoning which enables them to work in projects, research as well as academic institutions.

PO2: Students get acquainted with fundamental concepts in atomic structure, spectroscopy, natural product chemistry and heterocyclic chemistry.

PO3: They perceive the factual knowledge of complex chemical structures, molecular rearrangements, reaction mechanisms, quantum mechanics, electrochemistry and their relevant importance.

PO4: They will be able to recognize, formulate and analyze the complex problems using the knowledge gained in various aspects of chemistry like supramolecular chemistry, nanotechnology, asymmetric synthesis, chemical kinetics etc.

PO5: They augment the recent development in the field of green synthesis, organic synthesis, pharmaceuticals, bioinorganic and bioorganic chemistry.

PO6: Students will be aware of responsibilities towards environment and apply knowledge to solve issues related to environmental pollution.

PO7: They comprehend the importance of various heteroatom, structure, their coordination and bonding in metal complexes.

PO8: Students enhance their skills in devising chemical experiments, chemical synthesis, elucidating the structure of compound using chemical entities and spectral characterization techniques.

M.Sc. CHEMISTRY
COURSE OUTCOMES

SEMESTER-I

A. Inorganic Chemistry

CO1: Students develop skill to identify, analyze and understand symmetry of every task in daily life.

CO2: Learns to demonstrate, analyze and apply fundamental knowledge in bonding in metal complexes.

CO3: They acquire and enhance skills in metal ligand interactions and their stability constants.

CO4: Students procure knowledge in diatomic ligands and ligational aspects.

B. Organic Chemistry

CO1: Understand to discern the relationship between stereochemical molecules that plays a role in drug design.

CO2: They develop skills to build pathway of reaction mechanism.

CO3: Students perceive the importance of conformational analysis of acyclic molecules.

CO4: They understand the importance of natural products as drugs.

C. Physical Chemistry

CO1: Students develop ability to learn the basic and advanced concepts of entropy, understand the various applications of thermodynamics.

CO2: They acquire the knowledge and applications of EMF electrochemical cells.

CO3: They understand the quantum mechanical concepts of various microscopic entities.

CO4: Students will be able to demonstrate the reaction rates for various chemical reactions.

D. Analytical Techniques and spectroscopy- I

CO1: Students develop ability to identify, determine different organic samples nutritional quality in food, crime sense testing, forensic pathology.

CO2: They acquire ability to determine the structure of organic molecules in solution and study of molecular crystals.

CO3: Learns to demonstrate, analyze and identify different structures and functional groups of organic compounds used in research.

CO4: They comprehend the experimental application of electronic structure.

SEMESTER-II

A. Inorganic Chemistry

CO1: Students acquire knowledge and understand the reaction mechanism in metal complexes.

CO2: Learns to demonstrate, analyze and apply knowledge to calculate microstates, terms related to complexes.

CO3: They acquire knowledge about the stability and structural patterns of metal clusters.

CO4: They develop skills to identify role of metal ions in the biological and physiological systems.

B. Organic Chemistry

CO1: Understand the reaction mechanism and determine NGP effects on rates of reactions.

CO2: Students will be able to differentiate the thermal and photochemical conditions of pericyclic reactions, solve the problems related to it.

CO3: They acquire knowledge in photochemistry, analyze and solve the problems.

CO4: Learns to recognize intermediate formed in various molecular rearrangements.

C. Physical Chemistry

CO1: Students gain applicative knowledge of thermodynamics to distinguish ideal and non ideal systems.

CO2: They develop ability to calculate different states of molecules and study about various photochemical reactions.

CO3: They acquire theoretical knowledge on different aspects of quantum chemistry.

CO4: They understand the unique importance of solids and technological applications in the advancement of human life.

D. Analytical Techniques and spectroscopy- II

CO1: Students will be able to analyze the quality of the drug in tablets.

CO2: They develop potential to interpret structure of compounds by NMR.

CO3: They develop potential to interpret structure of compounds by Mass spectrometry.

CO4: They gain ability to analyze the structure of compounds by PES and ESR.

SEMESTER-III

A. Synthetic Reagents, Advanced NMR, Conformational Analysis and ORD

CO1: Students comprehend the use of protecting groups to obtain chemoselectivity in a chemical reaction.

CO2: They will be able to differentiate the oxidation and reduction reactions that help in understanding chemical processes.

CO3: Learns to interpret the structure of unknown compounds using ^{13}C & 2D- NMR spectra.

CO4: They gain insight on conformational characteristics of molecules and understanding ORD helps to solve stereochemical problems (Steroids).

B. Modern Organic Synthesis

CO1: This course aims to classify the generation of asymmetric synthesis and gain insight on their importance in medicinal chemistry.

CO2: Students recall the terminology used for target selection and identify the retrosynthetic approach to synthesize molecules.

CO3: They compare new synthetic reactions involving C-C & C-X coupling and ring formation reactions.

CO4: They procure knowledge on new techniques and concepts in organic synthesis.

C. Bioorganic Chemistry

CO1: They develop knowledge on reactions involving carbohydrates.

CO2: They will be able to differentiate the structure of DNA and RNA, perceive various biological phenomenon associated with it.

CO3: This course assimilates knowledge on the role of enzymes as a biocatalyst for various chemical reactions.

CO4: Students apprehend the role of vitamins as a coenzyme to catalyze certain reactions.

D. Green Chemistry & Organic materials

CO1: Students appreciate the importance of green synthesis, technologies in sustainable growth of industry and society.

CO2: They adopt alternative methods and solvents for green synthesis.

CO3: They understand the applications of nanotechnology in various fields.

CO4: This course imbibes the importance of intermolecular interactions in supramolecular system.

SEMESTER-IV

A. Drug Design and Drug Discovery

CO1: Students delineate the process of drug discovery and development.

CO2: They procure knowledge on the challenges faced in drug discovery process.

CO3: They gain insight on computational methods in drug discovery.

CO4: Students appreciate the role of combinatorial chemistry in drug discovery process.

B. Drug Synthesis and Mechanism of action

CO1: Students will be able to recall the different drug target systems.

CO2: They recognize the drug structure and predict its pharmacological action.

CO3: They gain insight on the mode of action of drugs on target pathways.

CO4: Students appraise the role of chiral drugs in pharmaceutical industry.

C. Advanced Heterocyclic Chemistry

CO1: Students recall the background of heterocyclic chemistry and compares aromatic and non- aromatic heterocycles.

CO2: They will be able to differentiate 5 and 6 membered heterocyclic compounds.

CO3: This course comprehends the importance of more than 3 heteroatoms in pharmaceutical industry.

CO4: Students recognize the larger ring heterocycles and their importance.

D. Advanced Natural Products

CO1: Students comprehend the importance of natural compounds as lead molecule for drug discovery and key pathways for biosynthesis of natural products.

CO2: They compare different classes of natural product through structural elucidation and evaluate the method of synthesis.

CO3: They gain potential to interpret the complex structure of natural products using advanced spectral methods.

CO4**:** They understand the planning of total stereoselective synthesis of natural products.

INFRASTRUCTURE

S.No.	Infrastructure	Details
1.	Classroom	2
2.	Classroom with LCD facility	1
3.	Laboratories	3
4.	Instrumentation Room	1
6.	Chemical Preparation cum Store Room	1
7.	UV-Visible Spectrophotometer	1
8.	Computer	1
9.	Library	PG library: 1328 books PG Library : 4 Journals – 2 National & 2 International

PG Chemistry Lab- I

Werner's Lab

PG Chemistry Lab – II

Lavoisier Lab

PG Lab- III

Ostwald Lab

PG Store Room cum Preparation Room

JOURNALS IN PG LIBRARY

International Journals

1. International Journal of Advanced Chemistry Research.

2. International Journal of Chemistry and Applications.

National Journals

1. Advanced Journal of Chemistry- Section B

2. Journal of Chemical Reviews

M.Sc. CHEMISTRY

TIME TABLE (2023-2024) SEM (II AND IV)

DAY	YEAR	I 10:00-11:00 am	II 11:00-12:00 pm	III 12:00-1:00 pm	1:00-1:30 pm	PRACTICALS
MON	I	A_1-batch (Organic) - V B_1-batch (Analytical) - J		P-I- J	L	1:30 to 3:30 pm A_1-batch (Analytical)K B_1-batch (Organic)-V
MON	II	P-I- R	P-I - X	P-IV -Y	U	1:30 to 4:30 pm A2-Spectral problems -R B2- Drugs synthesis& Analysis- X
TUE	I	A_1-batch (Organic)- V B_1-batch (Analytical) - J		P-III- K	N	1:30 to 3:30 pm A_1-batch (Analytical)K B_1-batch (Organic)-V
TUE	II	P-I - X	P-IV- Y	P-II- R	C	1:30 to 4:30 pm A2- Spectral problems - R B2- Drugs synthesis& Analysis- X
WED	I	P-II- V	P-I- J	P-IV-K	H	1:30 to 3:30 pm A_1-batch (Inorganic)-J B_1-batch (Physical)-K
WED	II	P-IV - Y	P-II- R	P-I-X	B	1:30 to 4:30 pm A2- Spectral problems - R B2- Drugs synthesis& Analysis- X
THU	I	P-I - J	P-II-V	P-IV- J	R	1:30 to 3:30 pm A_1-batch (Inorganic)-J B_1-batch (Physical)-K
THU	II	P-II- R	P-III- X	Reference/ Library	E	1:30 to 4:30 pm A2- Drugs synthesis& Analysis-X B2- Spectral problems – R
FRI	I	P-III-K	P-II-V	Reference/ Library	A	1:30 to 3:30 pm A_1-batch (Physical)-K B_1-batch (Inorganic)-J
FRI	II-	P-II-R	P-III-X	Reference/ Library	K	1:30 to 4:30 pm A2- Drugs synthesis& Analysis- Y B2- Spectral problems - V
SAT	I	P-IV-J/K	P-III-K	Reference/ Library		1:30 to 3:30 pm A_1-batch (Physical)-K B_1-batch (Inorganic)-J
SAT	II	P-III- X	P-IV- R	P-III-V		1:30 to 4:30 pm A2- Drugs synthesis& Analysis - Y B2- Spectral problems – V

M.Sc. Previous: Room No. 12

M.Sc. Final: Room No. 13

R. Shivajyothi (Inorganic Chemistry)

B. Keerthana (Physical Chemistry)

Ramitha Nair, Dr. K. Vijaya Lakshmi (Organic Chemistry)

M.Sc. Chemistry

Workload allotted to PG Faculty

Academic Year 2023-24

Semester – II and IV

S.No.	Name of the Faculty	No. of theory hrs / week	No. of Practical hrs/ week	Total teaching hrs/week
1.	Ms. Ramitha Nair R	6	12	18
2.	Dr. K. Vijaya Lakshmi	4	14	18
3.	Ms. R. Shivajyothi	6	12	18
4.	Ms. B. Keerthana	6	12	18
5.	X (Organic Chemistry faculty)	6	12	18
6.	Y (Organic Chemistry faculty)	4	6	10
		Overall workload/week		100hrs/week

TEACHING METHODOLOGIES

1. Lecture method is used to explain the concepts.

2. Demonstration method is used to understand the working of the instruments.

3. Lecture cum demonstration method is used for more easy way of understanding the concepts.

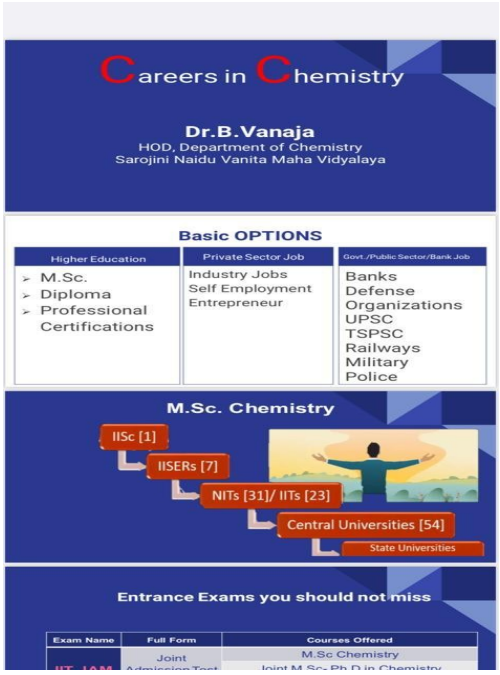
4. ICT tools are used for understanding the abstract concepts.

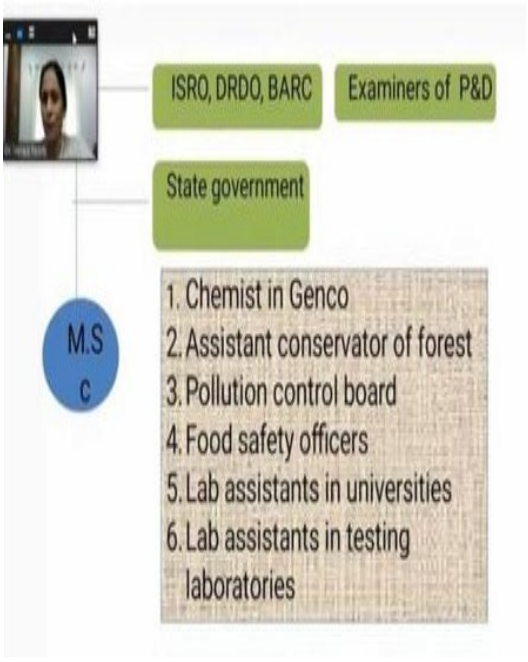
5. Project method is used for developing innovative skills and to develop the scientific temper.

STUDENT SUPPORT SERVICES

- Miss. Swapna, alumnae enlightened M.Sc. Chemistry students on "Career guidance & opportunities in Chemistry" on 14th December 2021.

- Dr. B. Vanaja Reddy delivered a lecture on **"CAREERS IN CHEMISTRY"** for all U.G & P.G students of life science & physical sciences on 14th August 2020.





PO-CO ATTAINMENT

BATCH 2021-2022

Semester- I

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	0.56	0.68	0.87	0.06	0.18	0.5	1.25
Target Achieved	2	0.35	0.38	0.61	0.03	0.1	0.45	0.92

Semester- II

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	1	1.06	0.87	0.32	0.32	0.37	1.12
Target Achieved	2.6	0.25	0.86	0.8	0.31	0.31	0.37	1.05

Semester- III

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	0.5	1	1.18	1.56	0.37	–	1.68
Target Achieved	2.64	0.45	0.83	1.1	1.3	0.34	–	1.63

Semester- IV

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	1.5	0.75	0.18	1.56	–	0.5	0.93
Target Achieved	1.99	1.01	0.5	0.13	1.02	–	0.32	0.635

PO-CO ATTAINMENT

BATCH 2022-2023

Semester- I

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	0.56	0.68	0.87	0.06	0.18	0.5	1.25
Target Achieved	1.985	0.197	0.334	0.514	0.007	0.082	0.431	0.592

Semester- II

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	1	1.06	0.87	0.32	0.32	0.37	1.12
Target Achieved	2.93	0.235	1.052	0.85	0.294	0.304	0.373	1.068

Semester- III

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	0.5	1	1.18	1.56	0.37	–	1.68
Target Achieved	2.09	0.42	0.7	0.81	1.02	0.15	–	1.15

Semester- IV

Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Target Attainment	3	1.5	0.75	0.18	1.56	–	0.5	0.93
Target Achieved	2.96	1.5	0.73	0.18	1.52	–	0.5	0.93

FACULTY PUBLICATIONS

PAPER PUBLICATIONS

1. Dr. K. Vijaya Lakshmi –Highly Efficient SO3H – Carbon Catalyst Solvent –Free Synthetic Protocol for Wax esters via Esterfication of Long Chain Fatty Acids and Alcohols, B.L.A. Prabhavathi Devi, **K. Vijaya Lakshmi**, T Vijai Kumar Reddy, **Asian Journal of Green Chemistry 7, 239-249, 2023.**

PATENT

Process for the preparation of Hexadecyl cis -9-Tetradeceloate and Hexadecyl cis- 10 – Tetradecenoate in **US Patent No. 8,816,109 B2.**

STUDENT ACHIEVEMENTS

- Mahboob begum and E. Satvika from M.Sc. Chemistry Final year participated in Powerpoint & Poster Presentation and **won first prize** conducted by Department of Physics & Electronics on the eve of Sir C.V Raman Birth Anniversary on 7th November 2023.

- PG and UG students Ms. G. Thriveni, Ms. B.Shruthi, Simran Palan and Sri Varsha , presented a paper entitled “Nano materials & their Applications “ in a National conference on “ Recent Advances in Green & Sustainable Chemical Science” organized by Department of Chemistry, St. Pious X Degree College, Nacharam, on 20thJAN 2023.

DEPARTMENTAL ACTIVITIES- 2018- 2023

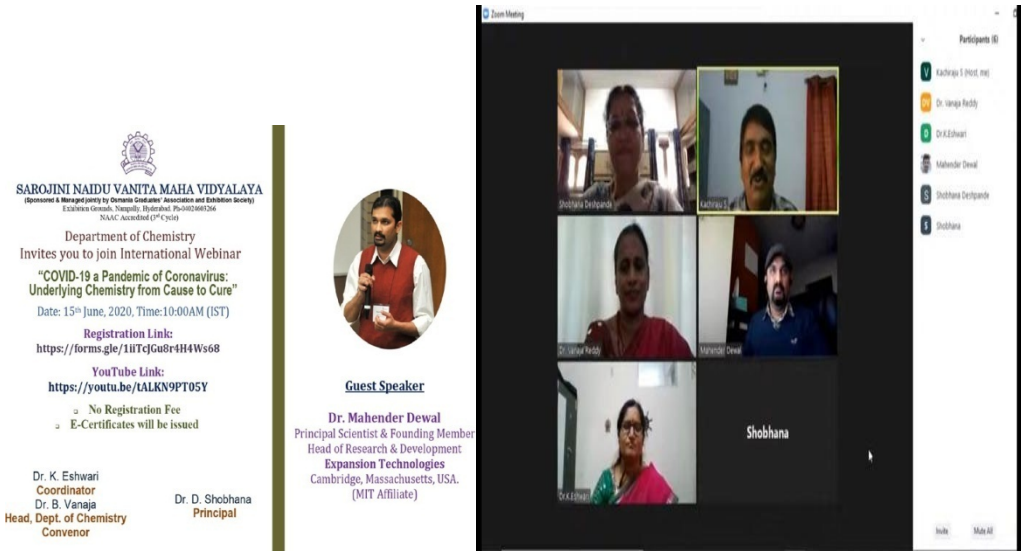
S.No.	Activity	Details	Date
1.	6- Day Faculty Development Programme	Organized in collaboration with A.V College of Arts, Science & Commerce	23- 28th Sept. 2021
2.	Inter Collegiate Quiz & Power Point Competitions	Commemoration of 153 years of periodic table	14th February 2022
3.	Industrial Visit	1. ARCI 2. Sai Life Sciences Lab	19th January 2023 25th January 2023
4.	Seminar	Dr.Mahender Dewal, Principal Scientist & Founding Member Massachusetts, USA - "Novel bio medical research tools & techniques"	16th August 2023
5.	Add- on Courses	Academia- Industry Interface – M.Sc. Chemistry I and II year students	12th December 2022 to 4th February 2023
6.	Guest Lectures Delivered	Mohd. Afzal Mohiuddin -"Infra Red Spectroscopy" -St. Joseph Degree College for Women	10th November 2022
7.	Workshop organized	. Prof. M. Vithal, CSIR Emeritus Scientist , O.U. – resource person for One Day Workshop on " Synthesis of Nano Particles."	2nd February 2024

DEPARTMENTAL ACTIVITIES- 2018- 2023

S.No.	Activity	Details	Date
8.	Guest Lectures Organized	1. Dr.Bhanudas, Senior Scientist, Escentia Lab - "Analytical & Purification Techniques- Industry Prospective." 2. Prof. M.Vijjulatha, Principal, Telangana Mahila Viswavidyalayam- "Asymmetric Synthesis" 3. Dr. Sarbanipal, MNR PG College- " Asymmetric Synthesis" 4. Dr. Sarbanipal, MNR PG College- " Spectral Identification of Natural Products" 5. Prof. P. Veerasomaiah, O.U.- " Quantum Chemistry" 6. Dr. S. Sreekanth, Nizam College – " Software Programming"	31st January 2023 11th March 2022 5th February 2021 2nd May 2019 3rd April 2019 10th April 2018
9.	Outreach Programme	PG Faculty visited two Government Schools in Amberpet and Nallakunta - "Gyana Jyothi Outreach Programme"	12th October 2022

ACTIVITIES ORGANIZED

1. Department of Chemistry organized an International Webinar on "COVID**-19 a Pandemic of Coronavirus: Underlying Chemistry from Cause to Cure** " by Dr. Mahender Dewal, Principal Scientist & Founding Member, Head of Research & Development ,Expansion Technologies, Cambridge, Massachusetts, USA (MIT Affiliate) on 15th June 2020.



2. SEMINAR

- **Professor M. Vithal, CSIR** – Emeritus Scientist, Department of Chemistry, University College of Science, Osmania University addressed M.Sc. students on the topic **"Research Methodologies"** as a part of Lecture series for PG Staff and students on 23rd January 2024.

- One day seminar on **"NOVEL BIO MEDICAL RESEARCH TOOLS & TECHNIQUES**" for cancer therapy was organized on 16TH August 2023. Guest Speaker- **Dr. Mahender B Dewal** founding member & chief scientific officer expansion technologies Inc. Cambridge Massachusetts.

3. WORKSHOP

- A One Day Workshop on "Synthesis of Nano Particles" was conducted for B.Sc. and M.Sc. Chemistry students on 2nd February 2024. Resource Person- Professor M. Vithal, CSIR – Emeritus Scientist, Department of Chemistry, University College of Science, Osmania University.


GPS Map Camera
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Lat 17.385107°
Long 78.468362°
02/02/24 12:15 PM GMT +05:30
Google


GPS Map Camera
Hyderabad, Telangana, India
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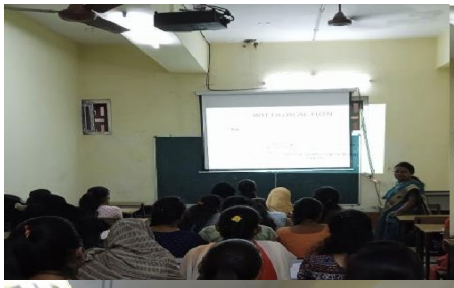
4. INTERCOLLEGIATE COMPETITIONS

Department of Chemistry organized an Inter collegiate Quiz & PowerPoint Presentation Competition in Commemoration of 153years of periodic table on 14th February 2022.

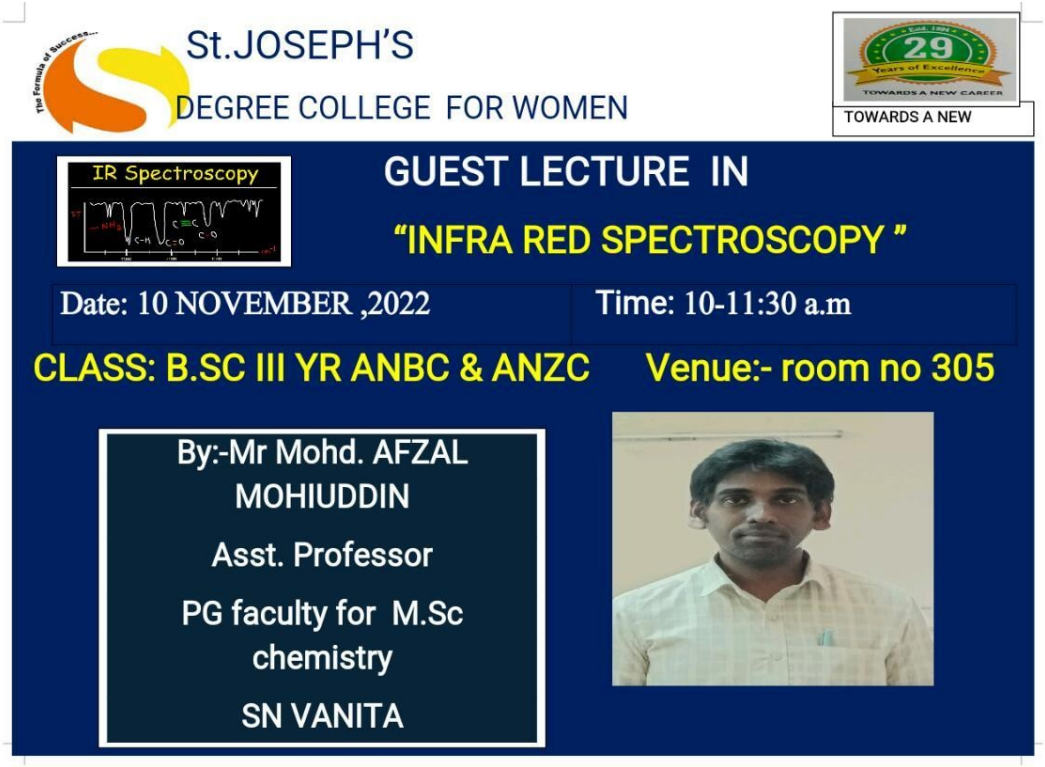
5. ADD-ON COURSE- PG

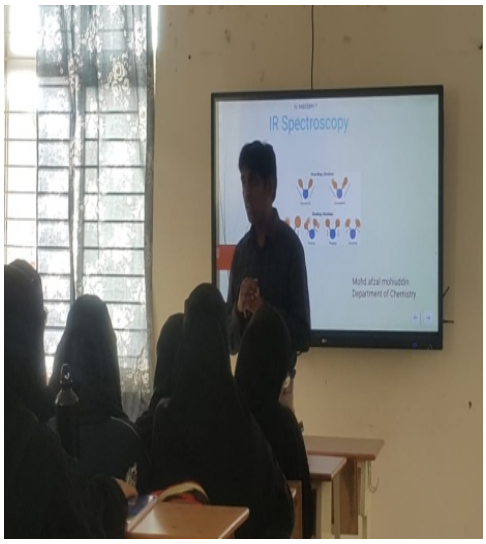
Conducted a 30hr Add- on Course titled “Academia –Industry Interface” from 12th December 2022 to 4thFebruary 2023 for M.Sc. Chemistry



6. Guest Lectures Delivered - PG

Mohd. Afzal Mohiuddin delivered a guest lecture on “Infra Red Spectroscopy” at St. Joseph Degree College for Women on 10th November 2022.



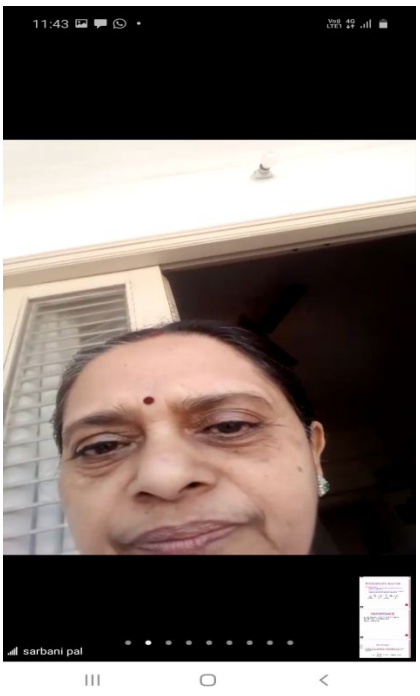


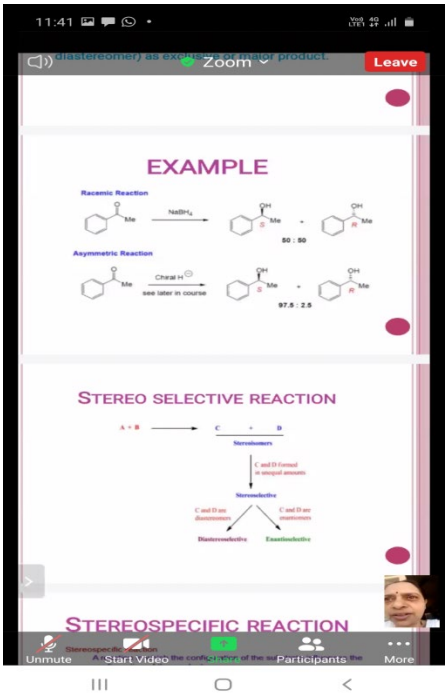
3. A Guest lecture on “Analytical & Purification Techniques- Industry Prospective” was organized on 31st January 2023- Resource person- Dr. D. Bhanudas, SeniorScientist, Escentia.

7.Guest Lectures Organized- PG

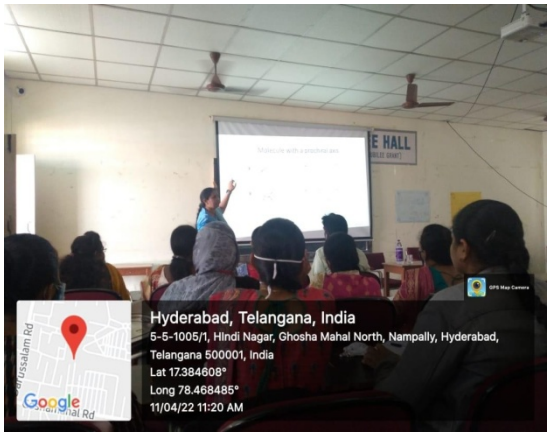
- A guest lecture was conducted for M.Sc. Chemistry Students on "Software Programming" by Dr. S.Sreekanth on 10th April 2018.
- A guest lecture was conducted for M.Sc. Chemistry Students on "Quantum Chemistry" by the Guest Speaker Prof. P. Veerasomaiah on 3rd April 2019.
- A guest lecture was conducted for M.Sc. Chemistry Students on "Spectral Identifications of Natural Products" by the Guest Speaker Dr. Sarbanipal on 2nd May 2019.

- An online guest lecture was conducted for M.Sc. Chemistry Students on "Asymmetric Synthesis" by the Guest Speaker Dr. Sarbanipal on 5Th February 2021.





- A guest lecture was conducted for M.Sc. Chemistry Students on "Asymmetric Synthesis" by the Guest Speaker Prof. M. Vijjulatha, Principal, Telangana MahilaVishwa Vidyalaya on 11th March 2022.



8. INDUSTRIAL VISIT

1. A Visit to ARCI Lab with B.Sc. & M.Sc. Final year students along with the faculty, Department of Chemistry on 19th January 2023. The students gained practical knowledge about Nano materials & their applications.

2. A visit to Sai Life Sciences Lab, Thurkapally with B.Sc. & M.Sc. Final year students along with the faculty, Department of Chemistry on 25th Jan 2023 where the students were able to see the working models related to biological & bulk synthesis of chemicals. They have also seen the Mass spectrometers, Proton NMR instruments. M.Sc. students had a better understanding of the concepts as a part of add- on course.

9. OUTREACH PROGRAMME – PG

Mohd. Afzal Mohiuddin , Ramitha Nair R, Dr. K. Vijaya Lakshmi and R. Shivajyothi- PG Faculty visited two Government Schools in Amberpet and Nallakunta, Hyderabad as a part of "Gyana Jyothi Outreach Programme" Conducted by Sarojini Naidu Vanita Maha Vidyalaya on 12th October 2022.

Visit to Government Boys High School, Amberpet

We reached the school on 12th October 2022 at 11.30AM. The school faculty Mrs. Prasunna introduced our faculty to the students of Class VIII, IX and X who were the part of our outreach programme and also highlighted the purpose of our programme. Few activities were conducted from 12PM to 1 PM as per the syllabus requirement in Chemistry.

Visit to Government High School, Nallakunta

We reached the school on 12th October 2022 at 2:00PM. The Head Mistress introduced our faculty to the students of Class VIII, IX and X who were the part of our outreach programme and also highlighted the purpose of our programme. Few activities were conducted from 2: 30 PM to 3:30 PM as per the syllabus requirement in Chemistry.

Necessary glassware and chemicals were taken to the schools as a part of this programme.

Activities Conducted

The activity began with an introduction to Chemistry- Name of glassware and chemicals usedin the activity.

Activity- I: Litmus and Ph test:

Acidic solution, Basic solution, Distilled Water and Salt solution were tested using litmus andPh paper.

Activity- II: Identifying Acid – Base using Indicator:

Acidic and Basic solutions were identified using Phenophthalein Indicator and the concept ofneutralization was demonstrated.

Activity- III: Chromatography:

The concept of Chromatography was explained by 49nalyzing the samples on Thin Layer Chromatographic plates and running the plates in mobile phase.

Activity- IV: Separation of Immiscible Liquids:

A mixture of immiscible liquids- Nitrobenzene and water were separated by using separatingfunnel apparatus.

Activity- V: Sublimation:

The concept of Sublimation by heating a mixture og chalk powder and ammonium chloride ina china dish.

CONCLUSION:

The outreach Programme provided the students with an opportunity to understand their course content and make them aware of the significant role of experimental learning for a better understanding of the concept as majority of the government schools lack proper lab facilities. The objective of our outreach programme was achieved as the students participated enthusiastically and had zeal to learn the experiments shown.

STUDENT PLACEMENT- PG

S.NO	YEAR	NAME OF THE STUDENT	WORKING/ PURSUING STUDIES
1.	2017-2019	A.Sukanya	Teacher in Sri Chaitanya Techno School.
2.	2018-2020	M.Deepika	Research chemist in Chem Veda,Uppal ,HYD.
3.	2018-2020	M.Bhavana	Jr.Assistant Cum Typist in Professor Jayashankar, Telangana state Agricultural University
4.	2018-2020	M.Souyanja	Research Associate in Aragen Life Science Nacharam
5.	2018-2020	B. Rekha	Research chemist in Chem Veda,Uppal ,HYD.
6.	2018-2020	Naveena	Research chemist in Chem Veda,Uppal ,HYD.
7.	2019-2021	A.Ramya	Medical coder in Omega Health care
8.	2019-2021	Punyavathi	Medical coder in R1,RCM company
9.	2019-2021	V.Rekha	Research chemist in Hetero Lab
10.	2019-2021	M.Vanita	Associate Analyst in Global Logic
11.	2019-2021	Y.Sowmya Raj	QA at Natco Pharma Limited Ranga Reddy
12.	2019-2021	U.Madhu Sri	Assistant Manager in ICICI Bank
13.	2019-2021	Y.Sandhya	Performance test Engineer at Infosys HYD.
14.	2020-2022	P.Seena	Assistant Professor in Sridevi Engineering College
15.	2020-2022	G.Sravani	Assistant Professor in Sridevi Engineering College
16.	2020-2022	E.Soundarya	Degree lecturer at Keshav Memorial Institute of Commerce and Science
17.	2020-2022	P.Priyanka	Junior lecturer at Resonance Educational Institutions

STUDENT PLACEMENT- PG

S.NO	YEAR	NAME OF THE STUDENT	WORKING/ PURSUING STUDIES
18.	2020-2022	N.V. Sree Lasya	Process Assosicate at Quadrantech Gouchibowli Hyd.
19.	2021-2023	G. Chandana	Research Chemist in Hetero Lab
20.	2021-2023	G. Anusha	Research Chemist in MSN laboratories
21.	2021-2023	T. Sandhya	Research Chemist in EMNAR Pharma LTD
22.	2019-2021	R. Navya Sri	ESpi Industries and Chemicals Pvt. Ltd.

FUTURE PLANS

- To organize National seminar/ conferences.
- To organize Faculty Development Programmes.
- To initiate collaborative activities with other colleges and industries.
- To organize placement drive (Pharmaceutical Companies) for M.Sc. students.
- To start career oriented certificate courses.